

## Environmental Fate Template Focus Report/Decision Document

**PMN #: P-18-0032**

**Fate:** Environmental fate is the determination of which environmental compartment(s) a chemical moves to, the expected residence time in the environmental compartment(s) and removal and degradation processes. Environmental fate is an important factor in determining exposure and thus in determining whether a chemical may present an unreasonable risk.

### **Parent compound - Environmental Fate Endpoints:**

EPA estimated a number of physical-chemical and fate properties of this new chemical substance using data for analogous chemicals. Overall, these estimates were indicative of low potential for this chemical substance to volatilize into the air and a low potential for this chemical to migrate into ground water. Removal of the substance in wastewater treatment is likely due to sorption.

- Overall wastewater treatment removal estimate of 90% based on sorption.
- Sorption to sludge is strong.
- Air Stripping (Volatilization to air) is negligible.
- Removal by Biodegradation is negligible.
- Sorption to Soil and Sediment is very strong.
- Migration to Groundwater is negligible.

### **P & B Rationales:**

**Persistence<sup>1</sup>:** Persistence is relevant to whether a new chemical substance is likely to present an unreasonable risk because chemicals that are not degraded in the environment at rates that prevent substantial buildup in the environment, and thus increase potential for exposure, may present a risk if the substance presents a hazard to human health or the environment.

EPA estimated biodegradation half-lives of this new chemical substance using data for analogous chemicals.

P3 - High persistence based on data for analogous chemicals in addition to large predicted molecular volume and low water solubility, which inhibits bioavailability and biodegradation.

- Ultimate Aerobic Biodegradation: EPA estimated a half-life of > 6 months.

<sup>1</sup> Persistence: A chemical substance is considered to have limited persistence if it has a half-life in water, soil or sediment of less than 2 months or there are equivalent or analogous data. A chemical substance is considered to be persistent if it has a half-life in water, soil or sediments of greater than 2 months but less than or equal to 6 months or if there are equivalent or analogous data. A chemical substance is considered to be very persistent if it has a half-life in water, soil or sediments of greater than 6 months or there are equivalent or analogous data. (64 FR 60194; November 4, 1999)

<sup>2</sup> Bioaccumulation. A chemical substance is considered to have a low potential for bioaccumulation if there are bioconcentration factors (BCF) or bioaccumulation factors (BAF) of less than 1,000 or there are equivalent or analogous data. A chemical substance is considered to be bioaccumulative if there are BCFs or BAFs of 1,000 or greater and less than or equal to 5,000 or there are equivalent or analogous data. A chemical substance is considered to be very bioaccumulative if there are BCFs or BAFs of 5,000 or greater or there are equivalent or analogous data. (64 FR 60194; November 4 1999)

- Ultimate Anaerobic Biodegradation: EPA estimated a half-life of > 6 months.

**Bioaccumulation**<sup>2</sup>: Bioaccumulation is relevant to whether a new chemical substance is likely to present an unreasonable risk because substances that bioaccumulate in aquatic and/or terrestrial species pose the potential for elevated exposures to humans and other organisms via food chains.

EPA estimated the potential for the new chemical substance to bioaccumulate using data for analogous chemicals.

B1 - Low bioaccumulation potential based on data for analogous chemicals in addition to large predicted molecular volume and low water solubility, which inhibits bioavailability and biodegradation.

**Fate Testing Recommendations:** none

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